**PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

**AGENDA ID 15473**
**ENERGY DIVISION** **RESOLUTION E-4824**
**February 9, 2017**

# R E S O L U T I O N

Resolution E-4824. Adoption of revised Self-Generation Incentive Program rules pursuant to Decision (D.) 16-06-055.

PROPOSED OUTCOME:

- The advice letter filed jointly by Southern California Gas Company, Pacific Gas & Electric Company, Southern California Edison Company and the Center for Sustainable Energy is approved subject to modifications. A Tier 1 advice letter that ensures compliance with this Resolution shall be filed within
  14 days.

SAFETY CONSIDERATIONS:

- The revised rules ensure that any projects receiving funds from the Self-Generation Incentive Program meet recognized safety standards.

ESTIMATED COST:

- There is no incremental cost associated with these changes to the Self-Generation Incentive Program rules.

By Southern California Gas Company Advice Letter (AL) 5049, Pacific Gas & Electric Company AL 3773-G/4942-E, Southern California Edison Company AL 3491-E, and Center for Sustainable Energy AL 71, filed jointly on October 21, 2016.

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## SUMMARY

On October 21, 2016, Southern California Gas Company (SCG), Pacific Gas & Electric Company (PG&E), Southern California Edison Company (SCE) and the Center for Sustainable Energy (CSE) – collectively referred to as the Program Administrators (PAs) – jointly filed an advice letter in accordance with Decision (D.) 16-06-055 (the Decision).[1]

The advice letter revises the rules of the Self-Generation Incentive Program (SGIP) in accordance with the Decision. The significant changes made to the SGIP Handbook by the advice letter include: (a) the allocation of 75% of the incentive budget to energy storage projects, (b) setting a minimum biofuel requirement for generation projects, (c) capping each technology developer to no more of 20% each of the incentives for large-scale energy storage, residential energy storage and generation, (d) the creation of a step system for incentives, and (e) the creation of a lottery system for allocating incentives to projects when a given step is oversubscribed.

This resolution requires that the PAs make the following modifications to the SGIP Handbook:

- Adjust the calculation of the biogas adder such that only the amount of biogas used that exceeds the minimum required by the biogas blending rule for that program year is used to determine the total biogas adder incentives.
- Raise the threshold for employing a sizing requirement for SGIP systems from 5 kilowatts (kW) to 10kW.
- Replace the existing method for estimating an SGIP customer's maximum demand by a hierarchy of three methodologies to be used in the following order of preference: 1) actual data on the maximum demand of the customer over the previous 12 months, 2) an estimation of maximum demand based on the customer's highest recorded interval usage over the previous 12 months, or if 12 months of data are not available then 3) the National Electrical Code (NEC) Section 220 method.

[1] D.16-06-055 at 82-83.

- Eliminate requirement for customers filing for SGIP funding with SCE and PG&E to submit their usage and demand data once they have established they are an electric customer of either SCE or PG&E through the submission of bills evidencing that fact.
- Clarify that the proposed pause period will only take place if an incentive step is fully subscribed within 10 calendar days.
- Provide the zip codes that are wholly contained by the service area of the Los Angeles Department of Water and Power (LADWP) and SCE's West Los Angeles Local Reliability Area. In the event that a zip code is only partially contained in these areas, a map must be provided showing the exact location of the boundary of LADWP or the West Los Angeles Local Reliability Area in the zip code.
- Clarify that a single 10-year service warranty for storage systems is sufficient to meet the statutory requirement for safe and commercially available equipment in the event that NRTL certification has not been achieved, and in the event that Rule 21 interconnection standards do not require an additional warranty. The SGIP Handbook shall further clarify that if Rule 21 interconnection standards or NRTL certification ultimately require a separate 10-year manufacturer's warranty in addition to the 10-year service warranty, then that obligation for dual warranties stands and must be met by the project developer.

The advice letter fulfills the requirements of the Decision and is therefore approved, subject to the modifications listed above. The PAs must jointly file a Tier 1 advice letter within 14 days of the effective date of this Resolution, conforming to the modifications required by this resolution.

## BACKGROUND

SGIP was significantly modified by D.16-06-055 in response to Senate Bill (SB) 861 (Committee on Budget and Fiscal Review, 2014), Assembly Bill (AB) 1478 (Committee on Budget, 2014) and to reflect changing conditions and priorities with respect to the program. According to the advice letter, the PAs propose to make the following changes to the SGIP rules as contained in the SGIP Handbook:

- All projects seeking SGIP funding must meet new safety requirements. The technology used by the project must be certified safe by a Nationally Recognized Testing Laboratory (NRTL), and if such certification is not available then the technology must meet the safety and reliability standards of Rule 21 and the Net Energy Metering Successor Tariff.
- All projects seeking SGIP funding that use natural gas as a fuel must use a certain amount of renewable fuel (i.e., biogas) starting in 2017. The amount required will increase in subsequent years.
- The eligibility requirements for SGIP projects that seek to use directed biogas[2] will be aligned with those used by the California Energy Commission (CEC) in their Renewable Portfolio Standard (RPS) guidelines.
- All projects seeking SGIP funding that use natural gas as a fuel must meet the greenhouse gas emission factors as outlined in D.15-11-027, with no credit given for the use of renewable biogas.
- All projects seeking SGIP funding that use biogas as a fuel, including pressure reduction turbine projects, will receive an additional incentive of $0.60/watt prorated to the percentage amount of biofuel used. For those projects with a capacity of 30 kilowatts (kW) or greater, the additional incentive for biogas will be paid over a five year period subject to verification of the annual amount of biogas used by the project.
- 75% of SGIP's total incentive budget is now reserved for energy storage projects, and 25% of the total incentive budget is reserved for energy generation projects. 15% of the budget for energy storage projects is reserved for residential energy storage projects sized 10 kW or smaller. 40% of the energy generation budget is reserved for generation projects that are renewable.
- Each year's total incentive budget will be equally allocated among five steps for energy storage projects and three steps for energy generation projects.

[2] "Directed" biogas is biogas that is produced in a different location than an SGIP project's location.

- Each Program Administrator (PA) will reserve 15% of their energy storage incentive budget in each step for small residential storage projects. A PA may distribute more than 15% of their storage incentive budget in each step to small residential projects if enough eligible applications are received. In the event that occurs, the additional allocations will count toward the 15% statewide goal for small residential storage projects. If the statewide goal is reached in a given step, and a PA has residual incentives for small residential projects that are not reserved, then that residual amount will be rolled into the next step's large-scale storage budget allocation.
- Each PA will reserve 40% of their generation incentive budget for renewable projects. This reservation will be made on an annual basis and will not be applied on a per step basis. The reservation will be met for a given PA once that PA allocates its individual 40% reservation, and for all PAs collectively once they allocate 40% of the statewide generation incentive budget to renewable projects.
- For the five storage steps, incentives will decline by $0.05/Watt-hour (Wh) between each incentive step. In the event that an incentive step becomes fully subscribed across all PA territories within 10 calendar days of the date that incentive step opened, the next incentive step will decline by $0.10/Wh rather than $0.05/Wh.
- For the three generation steps, the incentive rate declines by $0.10/W between each incentive step.
- Reserved funds from cancelled or withdrawn applications, and forfeited application fees, will be allocated to that PA's active incentive step (or the next incentive step if the cancellation, withdrawal or forfeiture occurs during a pause period between steps).
- Once funds have been fully allocated in the final incentive step of the PA's given budget, applications will be placed on a wait list to be funded as incentive funds become available. When funds become available, wait-listed projects will be assigned an incentive rate in the last step and reviewed in the order in which they were submitted. In the event that there are available funds and all wait-listed projects have been allocated

funding, new applications received will be subject to standard application and program procedures.

- Each SGIP project developer is allowed to apply for a maximum of 20% of each step's incentive budget in the large-scale storage, residential storage and generation technology reservations.
- In order to enforce the 20% cap on developer participation, potential SGIP developers must be pre-approved by the PAs and project applicants must use a pre-approved developer before applications are submitted.
- All projects seeking the California supplier 20% incentive adder must demonstrate that at least 50% of its capital equipment value is manufactured by an approved California manufacturer. Prior approval as an approved California manufacturer is insufficient and all manufacturers must meet the new requirements by June 23, 2017 in order for a project to receive the 20% incentive adder.
- The cost of an SGIP project's required energy efficiency audit is capped at 5% of the requested incentive payment and the requirement to invest in efficiency measures with a two-year payback period is rescinded.
- The PAs interpret the Decision's storage operating requirements to be functions of discharges, and therefore seek to clarify the Decision's storage operating requirements in the following ways:
    - Non-residential storage systems must discharge a minimum of 130 times per year. The cumulative amount of kilowatt hours (kWh) discharged by a system in one year must total 130 full discharges of the storage system's capacity.
    - Residential storage systems must discharge a minimum of 52 times per year. The cumulative amount of kWh discharged by a system in one year must total 52 full discharges of the storage system's capacity.
- All projects seeking SGIP funding will now be subject to an application fee of 5% of the total incentive sought.
- A lottery will be utilized in the event that a single day's applications for SGIP incentive funds exceed the funds available in a given step. Separate

lotteries will be conducted for the large-scale storage, residential storage and generation reservations by PA territory.

- In the event of a lottery for storage systems, certain projects will have priority: storage projects located within the service territory of the Los Angeles Department of Water and Power (LADWP); storage projects located in SCE's West Los Angeles Local Reliability Area (determined by zip code); storage systems paired with an on-site renewable generator and claiming the federal Investment Tax Credit (ITC), or if not claiming the ITC charging 75% from the on-site renewable generator. A project meeting more than one of these criteria will be given the highest priority.
- In the event of a lottery for generation systems, certain projects will have priority. Renewable projects using wind, waste heat to power, pressure reduction turbines, or 100% on-site biogas will be given highest priority. Those projects using 100% directed biogas will be given second priority. Those projects using blended on-site biogas will be given third priority. Those projects using blended directed biogas will be given fourth priority.
- Between steps there will be a pause period of at least 20 days. During this period no new applications may be accepted. A PA may conduct a lottery if necessary during this period. A PA may also perform a pre-screen of lottery projects and reject applications with missing documentation or from developers in excess of the 20% developer cap. After 10 days, the PAs will determine whether to increase the storage incentive step reduction from $0.05/Wh to $0.10/Wh based on statewide oversubscription for a given step.
- The SGIP rules are revised to be agnostic as to whether a project used alternating current (AC) or direct current (DC).
- All energy storage projects seeking SGIP funding are subject to a declining incentive structure where the marginal incentive rate declines for systems with durations of two hours or longer. No marginal incentives are available for capacity attained during the sixth hour of duration or later.
- The system sizing requirements for storage projects are based solely on the customer's previous 12-month annual peak demand.

- For the purpose of determining total eligible project costs, the warranty and/or maintenance contract costs are capped at 10% of the total claimed project costs.
- The system size cap and rebate levels for generation projects are modified so that the first megawatt (MW) of capacity may receive 100% of the applicable incentive, the second MW of capacity receives 75% of the applicable incentive and the third MW receives 50% of the applicable incentive. No SGIP incentives are available to generation projects larger than 3MW in size.
- The system size cap and rebate levels for storage projects are modified such that the first two megawatt hours (MWh) of capacity may receive 100% of the applicable incentive, the third and fourth MWh of capacity receive 50% of the applicable incentive and the fifth and sixth MWh of capacity receive 25% of the applicable incentive.

The advice letter (AL) filed by the PAs begins the process of implementing the changes set forth by the Decision.

## NOTICE

Notice of the AL was made by publication in the CPUC's Daily Calendar. The PAs state that their advice letter was sent to SCG's General Order (GO) 96-B service list and to the R.12-11-005 service list.

## PROTESTS

Protests and comments to the AL were filed by the California Solar Energy Industries Association (CalSEIA), SolarCity Corporation (SolarCity), Custom Power Solar, the Office of Ratepayer Advocates (ORA), Sunrun Inc. (Sunrun),[3] the California Energy Storage Alliance (CESA), Borrego Solar and Green Charge Networks LLC (GCN). All protests and comments were mailed on November 10, 2016 and are considered timely filed. Some parties filed protests

[3] On behalf of itself and several of its affiliated installers including Bulldog Construction/Nstall Solar, Nationwide Environmental and Construction Services, Inc., Solar Energy Rising, LLC, HoSoPo Corp. and RePower by Solar Universe.

while others filed comments, however we refer to all of these parties as "protestors" and their filings as "protests" for the sake of simplicity.

The PAs requested an extension to the normal deadline for filing a reply on November 15, 2016. This request was granted on November 16, 2016. The PAs filed a timely reply to the protests and comments on November 29, 2016.

## DISCUSSION

The AL filed by the PAs largely complies with the Decision and gives effect to its mandated changes to SGIP. However, in some areas the AL makes changes to SGIP that are not specifically called for in the Decision. The protestors also raise arguments concerning the compliance of the AL with the Decision's mandates. We discuss those inconsistencies below and direct the PAs to file a Tier 1 advice letter within 14 days of the effective date of this Resolution making certain modifications to the revised SGIP Handbook.

### Extra incentive for biogas use above the minimum

The Decision found that "[a]ll natural gas fueled technologies must utilize a minimum quantity of zero emission fuel, with any fuel usage above this minimum subject to a pro-rated incentive adder."[4] This "biogas adder" is significant and equals $0.60/watt in all generation incentive steps.

In their advice letter the PAs propose to allow generation projects to receive the biogas adder for any biogas used – including the minimum amount required by the Decision.[5]

In its protest ORA argues that the AL directly contradicts the language of the Decision in that the AL allows for the payment of the biogas adder for any amount of biogas used, including the minimum amount. ORA asserts that SGIP

[4] D.16-06-055; FOF 17, at 66.

[5] AL at 3-4; Attachment A at 65 ("Incentives for blended projects are calculated by multiplying the rated capacity (W) of the system by the technology incentive rate, plus the rated capacity of the system, multiplied by the percentage of renewable fuel multiplied by the renewable fuel (RN) adder rate ($.60/watt)").

projects should not receive additional incentives merely for meeting program eligibility requirements. ORA recommends that the PAs be ordered to file a revised AL that incorporates a biogas adder that is only paid for biogas usage above the minimum required.[6]

The PAs offer an alternate interpretation of the Decision's language that supports their approach. They argue that the Decision can be interpreted to mean that any project that meets the minimum SGIP requirements is eligible to receive SGIP subsidies for biogas, with any biogas use above the minimum eligible for additional, prorated payments. The PAs state that they submitted this interpretation earlier in 2016 to a wide group of stakeholders and found that industry representatives unanimously agreed that this interpretation was preferable to an interpretation similar to ORA's.[7] The PAs state that they continue to believe that their interpretation of the Decision's requirements allows for their original proposal as it appears in the AL.

The biogas adder was designed by the Decision to incent more biogas usage than required by the minimum blending rule, not to increase incentives for those projects that merely meet the minimum eligibility requirements of the program. The language of the Decision is clear on this point, and ORA's protest is upheld.

The interpretation of the Decision advanced by the PAs is illogical. The biogas adder is the pro-rated incentive adder that is available for those projects that use any fuel usage above the minimum required. If it were to be paid to those that merely meet the minimum biogas requirements it would cease to be an adder in the normal sense of the word. Because biogas is a minimum requirement for SGIP projects beginning in 2017, under the PAs' interpretation the adder would simply become part of the base incentive per watt of capacity, which would contradict the normal meaning of the word adder.

Therefore, the proposal by the PAs to credit all biogas used by a generation project with the biogas adder is rejected. The PAs must change their calculation so that only the amount of biogas used that exceeds the minimum required by

[6] ORA protest at 2-3.

[7] PA reply at 6-7.

the biogas blending rule for that program year is used to determine the total biogas adder incentives. Furthermore, the PAs are encouraged to utilize their ability to sanction program participants for infractions of program rules, including the failure to meet minimum biogas usage requirements.

**Application of the 20% developer cap**

The Decision creates a 20% cap on the amount of incentives in a given step that can be awarded to a single developer. Specifically, the Decision mandates that any single developer/installer (or any combination of affiliated developers/installers under the same majority ownership) is limited to 20% of the available funding for a given technology category's total in each incentive step.[8] The Decision continues its explanation of the developer cap by stating:

> "The SGIP [PAs] shall not issue conditional reservations to a project installed by a developer (or combination of affiliated installers/developers under the same majority ownership) that has already received reservations for active projects in a given step such that the total exceeds the percentage allocation for that step. Each reservation application shall include the name and address of the customer; the customer's account number; the name and address of the developer/installer; the name and address of the developer/installer's parent company, defined as an entity with a majority ownership interest in the developer/installer (direct parent and ultimate parent, if applicable); the identity of the owner; and the identity of the host."[9]

The AL further refines the proposed operation of this cap and creates a definition of a "developer" in section 4.1.5 of the revised SGIP Handbook. In order to verify the developer of each project, the PAs propose that developers will need to be pre-approved by PAs, and applicants must select a pre-approved developer before applications may be submitted. The PAs propose that entities interested in becoming an approved SGIP developer must meet the criteria set forth in section 4.1.5 of the revised SGIP Handbook.[10]

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[8] D.16-06-055 at 39-40. The Decision clarifies that the cap is applied separately to the residential and non-residential storage sub-buckets.

[9] *Id.*

[10] AL at 8.

Section 4.1.5 of the revised SGIP Handbook proposes the following definition of a developer:

> "A Developer is the corporate entity that holds the contract for purchase and installation of the system, and/or alternative System Ownership Agreement (such as a Power Purchase Agreement) with the host customer and handles the project's development activities. The Developer must fully disclose their participation in developing the project and/or ownership in the project, or that of a combination of affiliated installers/developers. The customer contract will be verified at Proof of Project Milestone to confirm the Developer's representations. When applicable, the Developer cap will apply to the aggregate of the projects for Developers under the same parent company."[11]

*Proposed definition of a "developer"*

Several protestors challenge the proposed definition of developer. Sunrun argues that while the Decision focuses on the corporate relationships among developers and installers to define a common developer, the AL broadens the definition to include entities that have "arm's length" commercial relationships (specifically power purchase agreements (PPAs)) with a single company to be included with that company for the purpose of calculating a cap.[12] Sunrun further states that there are very few commercial providers of storage systems, and if the PAs' proposal is accepted then the installers would only be able to participate in SGIP up to the limit of that provider's cap.[13] Sunrun would prefer to see developer defined as the installer of an SGIP project, as the vast majority of the revenue goes to the installer and doing so would encourage a diversity of installers to participate in SGIP.[14]

GCN broadly supports the Decision's developer cap and the emphasis on supporting a diverse and competitive marketplace of SGIP developers. However, they seek clarification on the intent of the definition as proposed. They claim that

[11] AL, Attachment A at 33.

[12] Sunrun protest at 2.

[13] Sunrun protest at 3.

[14] *Id.*

the PAs' proposed definition could severely impact participation in SGIP because GCN does not have knowledge as to the commercial relationships of various companies with their parent company ENGIE. They propose certain revisions to the PAs' proposed definition to address their concerns.[15]

The PAs disagree with Sunrun and state that if "developer" is defined as the entity installing equipment, a single project developer could contract with numerous installers without being subject to the developer cap and ultimately receive more than 20% of SGIP funds for a given budget category, contrary to the intent of the Decision.[16]

The PAs also disagree with GCN's proposed revisions. The PAs contend that the entity holding the contract for the project development activities, rather than entity who purchases the system, better reflects the "developer" of the project. The PAs nevertheless refine the proposed definition of "developer" to clarify that it includes "any combination of affiliated developers under the same majority ownership."[17]

At this time it is unknown if the developer cap will result in stalled incentive awards as suggested by Sunrun. The CPUC is not aware of any particular practical limitations on the number of developers – as defined by the PAs – that currently participate in the storage market. While Sunrun refers to a "big three"[18] number of storage developers, we are unclear on their identities and cannot confirm that they would be the sole developers in this marketplace as defined by the PAs.

Because the PAs' proposed definition of developer, as modified by their reply, does not conflict with the Decision's requirements, it is approved. We note that the Decision specifically allows for the PAs and Energy Division to reflect on the

[15] GCN protest at 2-4.

[16] PA reply at 4.

[17] *Id.*

[18] Sunrun protest at 3.

operation of the developer cap and propose modifications to the cap if it is apparent that the cap is interfering with fluid SGIP implementation.[19]

*Application of the 20% developer cap in each incentive step*

In its protest, CESA generally supports the application of the 20% developer cap but seeks a modification in how it is applied. CESA proposes that if a developer reaches its cap in a given incentive step, it be allowed to start applying for incentives in the next steps to maximize the continuity of its participation in SGIP. CESA states that the PAs' proposal "would continue to subject those developers that hit their cap to a program that continues to operate in fits and starts."[20]

CESA also recommends that the developer cap be adjusted based on funds actually available in a given step. In other words, if funds that are forfeited by cancelled projects are recirculated back into the program in subsequent steps, the 20% developer cap should apply to those total funds rather than a fixed amount of incentives calculated at the beginning of the incentive step process.[21] In essence, CESA's proposal would mean that the developer cap is updated as the total amount of incentives available in a step changes.

In their reply the PAs argue that adopting CESA's first proposal would lead to exponential increases in the cost of administering the program, and would suspend the opening of the program for several more months. The PAs also argue that CESA's proposal contradicts the spirit of the Decision to transform markets for industries as a whole and to foster longevity of SGIP funds.[22]

The PAs also oppose CESA's second proposal to adjust the developer cap based on funds actually in the step at a given time. They reason that the administrative complexity of doing so and the need for incentive certainty from the developer perspective suggests that the proposal should not be adopted.

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[19] D.16-06-055 at 40.

[20] CESA protest at 3.

[21] CESA protest at 3.

[22] PA reply at 7.

The proposal by the PAs in their AL is compliant with the Decision, and CESA fails to demonstrate how it is non-compliant. While it is true that the Decision intends for SGIP to run smoothly and fluidly from step to step, this does not require the PAs to allow single developers the ability to essentially reserve funds in future steps. Therefore, the protest is rejected.

**Sizing Limitations for Storage Projects**

The SGIP program currently allows installed systems to be sized up to the maximum current or forecasted electrical demand at the customer's project site. For new construction or projects with future demand growth, the demand must be substantiated before the incentive can be paid. Systems that are rated at 5 kilowatts (kW) or less are exempt from this system sizing requirement.[23]

In their AL, the PAs propose to keep the threshold for sizing exemptions at 5kW, while also keeping in place a formula used to estimate peak annual demand at a customer's location where that information is unknown.[24] This estimation formula is relevant primarily for residential and small commercial customers who may not be aware of their annual peak demand. The use of this formula is the only method proposed by the Handbook for estimating a customer's annual peak demand if that information is not otherwise available.

There are several arguments made by the protestors regarding the threshold for applying a system sizing requirement and the formula to use for project sizing above that threshold. Some protestors argue that this formula underestimates a customer's actual peak demand and that the 5kW threshold is inconsistent with other CPUC Decisions that employ a 10kW threshold for the sizing requirements of customer storage systems.[25]

[23] AL, Attachment A at 43.

[24] AL, Attachment A at 36, 43. As an example, the proposed formula for residential customers is: Peak Demand (kW) = Largest Monthly Bill (kWh/month) / (0.43 x Days/Bill X 24).

[25] *See generally* CalSEIA protest at 2-3, SolarCity protest at 4-5, Custom Solar Power protest at 4-7, Sunrun protest at 4-5 and CESA protest at 5-6.

First we address the formula for estimating a customer's peak demand and whether it should be changed. Second, we address the threshold at which to apply the estimation formula.

*Is the estimation methodology for customers that do not have annual peak demand data inaccurate? If so, should it be changed?*

In order to address the first argument that the formula underestimates actual peak annual demand, we need to examine the peak demand that an average small customer might have as well as the results that the current formula would generate for an average low-demand customer.

According to the California Energy Commission's 2009 Residential Appliance Saturation Survey (RASS), the average annual residential electricity consumption in California in 2009 was 6,296 kilowatt-hours (kWh) per household, based on billing data from 24,457 households.[26] Dividing that figure by 12 gives us an estimated average monthly residential usage of 525 kWh.

Applying this figure to the PAs' proposed formula, and assuming a 30-day month, then the peak demand is estimated to be 1.7kW.[27]

We then look to see if the average energy demand of various household appliances that may be used simultaneously exceeds this 1.7kW figure. Referring to Table 2.1.16 of the United States Department of Energy's 2010 Buildings Energy Data Book[28] we find the following demand values for some common household appliances when they are active: one coffee maker = 1kW; one microwave oven = 1.5kW; four 60 watt incandescent lightbulbs = 0.24kW; one high-definition television = 0.15kW; one desktop computer + monitor = 0.12kW.[29]

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[26] 2009 RASS Consultant Report, Executive Summary at 2. Available at: http://www.energy.ca.gov/2010publications/CEC-200-2010-004/CEC-200-2010-004-ES.PDF

[27] 525 / (0.43 * 30 * 24) = 1.7

[28] Available at: http://buildingsdatabook.eren.doe.gov/TableView.aspx?table=2.1.16

[29] Notably, we do not consider high-demand appliances such as air conditioners, refrigerators, pool pumps, or electric ranges for the purpose of this illustration. We deliberately consider appliances that are relatively common and low-demand to illustrate how an average household may easily exceed the PAs' proposed estimation formula. We understand that these figures are estimates and that the actual wattage of a given appliance may vary from these figures.

Assuming that all of these appliances may be active simultaneously at least once per year, we derive an annual peak demand of 3kW. This is nearly double the estimate provided by the PAs' estimation formula. Given this, we find that it is likely that the PAs' estimation formula underestimates the true annual peak demand of a residential customer.

We therefore uphold the protests of CESA and CalSEIA that the estimation formula as proposed appears to result in extremely low peak demand estimates and therefore may limit customer options for systems that receive SGIP funding.[30]

We next turn to the options that are available for addressing the flaws with the estimation formula. The formula could be adjusted to make it more accurate. Alternatively, a new formula could be developed, perhaps simplified so that the interval data from a customer's meter is used to reveal the peak kWh usage in a year that, when divided by one hour, would equal a peak kW demand estimate.

Some protestors argue that each customer's peak demand should be estimated by using National Electrical Code (NEC) Section 220, as this section of the NEC provides a methodology for estimating a given site's instantaneous peak demand.[31] CalSEIA suggests that in addition to using NEC Section 220 as an alternative to the existing estimation methodology, they could work with the CPUC to develop an alternative formula.[32]

Because the detail of this issue is not adequately addressed in the Decision, and because the proposal by the PAs in their AL does not allow for SGIP projects to be accurately sized to match a customer's peak demand, it is necessary for this Resolution to establish specific rules for a peak demand estimation methodology going forward in order to give effect to the Decision's mandates. We establish a hierarchy of three different methodologies to be used to estimate the annual peak demand of customers. The PAs are ordered to revise the SGIP Handbook to implement this hierarchy.

[30] CESA protest at 6; CalSEIA protest at 2.

[31] CESA protest at 6; SolarCity protest at 5.

[32] CalSEIA protest at 2.

The ideal option is not to estimate peak demand, but to simply discover the customer's actual peak demand by using the existing demand data collected by the utility for each customer. Assuming such data is available for a customer (regardless of whether they are billed according to their peak demand); this is the data that should be used. Implicitly, this is already the first choice outlined in the PAs' proposed SGIP Handbook.[33]

If this data is not available, then the interval data collected by a customer's meter should be sorted to find the highest amount of energy consumed in a given interval in the previous 12 months. This amount of energy consumed in kWh should be divided by one hour to determine the estimated peak demand. For example, if a residential customer's meter collected hourly interval data for a 12-month period, and this data revealed that the greatest hourly consumption was 5.5kWh during the previous 12 months, then the peak demand estimate would be 5.5kW. In employing this methodology, the most granular interval for which there is 12 months of available data should be used.

This interval data will not be available for all customers, including all customers with less than 12 months of history with the utility. In that event, the NEC Section 220 method recommended by the protestors should be used. Notably, Custom Power Solar argues in its protest that the NEC Section 220 method may not be helpful, and may be administratively burdensome to execute.[34] With that in mind, the PAs are authorized to report on any administrative difficulties in using the NEC Section 220 method and, if they deem necessary, propose alternatives to this methodology by December 31, 2017.

CESA does not favor the approach outlined above, and argues that "peak demand, as measured by 15-minute interval data, is inevitably less than the instantaneous demand customers may experience."[35] SolarCity also believes that the NEC Section 220 method is superior to a methodology based on interval data,

[33] AL, Attachment A at 36 ("Sites with 12-months of previous energy usage data (kWh) but without peak demand (kW) information available (e.g., customers on rate schedules without a demand component) will have an equivalent peak demand calculated using the following method…") (emphasis added).

[34] Custom Power Solar protest at 5.

[35] CESA protest at 6.

arguing that "peak demand calculated on a 15 minute interval basis is a billing construct as opposed to an accurate measure of peak electrical power needs of the host site."[36]

In response to these concerns, we affirm that we favor an empirical approach in this instance and believe the use of existing data will help streamline the SGIP application process.[37]

We next turn to the question of whether there should be threshold for employing this sizing requirement.

*Should the threshold for employing the estimation methodology be raised from 5kW to 10kW?*

The PAs propose to set the minimum size allowed without estimating a customer's peak demand at 5kW.[38] Several protestors argue the PAs' proposed minimum cutoff of 5kW is contrary to both the Decision and previous CPUC Decision 14-05-033. CESA argues that D.14-05-033 exempted energy storage devices sized 10kW or less from sizing requirements when paired to a NEM generator. They argue that the 5kW threshold proposed by the PAs contradicts this existing sizing threshold and would practically force a potential NEM customer considering a paired SGIP storage system to choose between the SGIP incentive and the NEM tariff, which is contrary to the intent of D.14-05-033.[39] CalSEIA and Custom Power Solar make similar arguments[40]

Sunrun generally agrees with this argument, and also asserts that the Decision provides minimum quantities and incentives for residential storage systems that

[36] SolarCity protest at 5.

[37] With respect to the protests of CalSEIA and Custom Power Solar that previous peak demand measurements are inappropriate for existing solar customers, the Decision does not specifically address or refute the sizing requirements of D.14-05-033, and therefore the sizing requirements of D.14-05-033 stand and should be utilized to estimate the appropriate size of an SGIP storage system paired with a NEM generator.

[38] AL, Attachment A at 43.

[39] CESA protest at 6.

[40] CalSEIA at 3; Custom Power Solar at 6-7.

are smaller than 10kW, making an estimation methodology cutoff of anything less than 10kW contrary to the Decision's carve-out for systems of this size.[41] CESA agrees that the 5kW threshold proposed by the PAs is "arbitrary and inconsistent" with this portion of the Decision.[42] CalSEIA makes a similar argument.[43]

SolarCity points to the contradiction between the sizing requirement in D.14-05-033 and the PAs' proposal and recommends that the threshold of 10kW be adopted in order to harmonize the requirements of SGIP and the NEM-paired storage (NEM-PS) framework. SolarCity also states that without raising the sizing threshold to 10kW, many residential customers would not find any storage systems on the market to utilize.[44] Sunrun's protest makes a similar argument and asserts that storage systems limited to 2kW or 3kW are economically infeasible and are not cost-effective to install.[45] We note that of the 295 SGIP storage projects paid out so far by PG&E, the smallest project is 4.5kW in size.[46] This suggests that there are very few customer options for storage systems under 5kW in size.

Custom Power Solar generally supports modifying the PAs' proposal to instead use the 10kW threshold employed by D.14-05-033.[47]

The reply of the PAs generally assert that storage project customers that plan to install systems with capacities of 5kW or greater should continue to supply 12 months of electric consumption data, including maximum demand and kWh consumption, to confirm that the participating storage system meets the program sizing requirements.[48] The PAs' reply does not directly address the protestors'

[41] Sunrun protest at 5.

[42] CESA protest at 5-6.

[43] CalSEIA protest at 3.

[44] SolarCity protest at 4.

[45] Sunrun protest at 4.

[46] Response of PG&E and SCE to the Motion of Powertree Services for a Stay of Expiration of Self-Generation Incentive Program Reservations at 5, filed November 21, 2016 in R.12-11-005.

[47] Custom Power Solar protest at 6-7.

[48] PA reply at 2.

assertion that conflicting sizing requirement cutoffs among the CPUC Decisions require harmonization. Rather, the PAs state that this argument is beyond the scope of issues they are allowed to address.[49]

The protestors' arguments on this point are persuasive. It is true that the Decision establishes a 10kW threshold for the incentives provided to storage projects. All residential storage projects less than or equal to 10kW in size are entitled to the maximum incentive allowed and are reserved a specific carveout (12.5%) of all SGIP incentives. Furthermore, D.14-05-033 established a 10kW threshold for using an estimation methodology for determining the maximum size of storage system paired with a NEM generator. It is also apparent that the current market for storage systems does not adequately support customer choice for systems less than 5kW in size.

Therefore, in order to harmonize the goals and requirements of the Decision and D.14-05-033, and to promote customer choice, any SGIP proposal for a storage project that is 10kW or less in size shall not be subject to a sizing requirement based on an estimate of the customer's peak demand. The PAs are ordered to submit a revised version of the SGIP Handbook implementing this change. The 5kW threshold remains intact for non-storage projects as the goals and requirements of the CPUC Decisions cited by the protestors relate only to storage systems. No arguments were raised that the proposed 5kW threshold for SGIP generation projects is contrary to a CPUC Decision.

**Customer documentation requirements**

In their protest, Sunrun describes several requirements of SGIP project customers that it believes impede the ability of a developer to efficiently sign up a customer for an SGIP incentive.[50]

[49] PA reply at 9, 10. While the PAs do not address the harmonization issue directly, elsewhere in their reply they stand by the requirement to size systems to customer demand if the system is greater than 5kW in size. Therefore, the PAs effectively take a position on the issue contrary to that of the protestors.

[50] Sunrun protest at 5-6.

*Customer energy usage and demand data*

First, Sunrun asserts that the requirement for a customer to submit data on 12 months of electricity consumption, including peak demand, as well as the requirement for PG&E and SoCalGas customers to submit gas bills is meaningless as the utilities already have access to this customer data.[51] They state it would simpler to require the utility to supply this data.[52] CESA generally agrees that demand data should be supplied by the customer's utility, and not the customer.[53] CalSEIA argues that while this requirement may remain, it would be redundant for those customers that install projects under the sizing threshold and therefore should not be required for those customers.[54]

The PAs reply that while electric utilities have access to the relevant data, two of the PAs – CSE and SCG – do not have access to customer demand data because they are not electric utilities. They state that for CSE and SCG "requesting electric [demand] data can take considerable amounts of time to complete for each project, holding up project reviews for weeks at a time."[55] The PAs also clarify that all projects, including those under 5kW, must demonstrate that they are a customer of an electric utility by submitting bills from their electric utility.[56]

Because the PAs grant that the electric utilities have the data available, the PAs are ordered to modify the administrative requirements of the program such that customers filing for SGIP funding with SCE and PG&E are not required to submit their usage and demand data once they have established they are an electric customer of either SCE or PG&E through the submission of bills evidencing that fact. In the case of a Sacramento Municipal Utility District (SMUD) customer that is seeking SGIP funding for a project as a PG&E gas customer, the existing documentation requirements continue to apply. The

[51] This data would normally be used to calculate the customer's annual peak demand and therefore determine the maximum size of the SGIP project.

[52] *Id.*

[53] CESA protest at 6-7.

[54] CalSEIA protest at 1.

[55] PA reply at 2.

[56] *Id.*

existing requirements also continue to apply for applications filed with CSE and SCG in light of the timing concerns raised in the PAs' reply. Neither CSE nor SCG are electric utilities and therefore lack direct access to the customer's electric consumption data. For these PAs the customer remains the ideal source of original data concerning the customer's energy usage and demand.

*Manual application resubmission in subsequent steps*

Second, Sunrun argues that it is inefficient for an SGIP applicant to manually resubmit a project application for a subsequent incentive step if that application was not accepted for a given incentive step. They point out that in the California Solar Initiative Program the applications that missed out on funding were automatically submitted for the subsequent step. They request that such automatic resubmission be implemented in the SGIP incentive step process.[57] CESA supports this approach and requests that a streamlined process for re-application be employed. CESA does not foresee significant changes in the information included in a typical application, and imposition of the PAs' proposal would result in inconvenience to the host customer with no apparent benefits to the program.[58]

Borrego Solar generally agrees with these critiques and recommends that the PAs' proposal be modified so that all applications not selected in a particular step's lottery are simply rolled forward to the next funding step. Borrego Solar does suggest an additional modification, which is to grant priority in subsequent lotteries to those projects that applied for – and failed to receive – incentives in earlier lotteries. They argue this would maintain a semblance of the "first-come-first-served" principle applied in earlier SGIP iterations.[59]

The PAs disagree that projects not selected in a lottery should be automatically rolled over to the next step, however they agree that the process for reapplication should be streamlined. Relevant documentation already uploaded would remain in the database, and there would be an option to resubmit application materials

[57] Sunrun protest at 6.

[58] CESA protest at 5.

[59] Borrego Solar protest at 1-3.

to the next step without re-uploading them. Any documents that specified an incentive amount, however, would require resubmission.[60]

The Decision seeks to facilitate a fluid SGIP design that supports the market with limited interruption.[61] The PAs' proposal on this point as outlined in their AL and their reply is in accord with this direction of the Decision and is therefore approved. The manual reapplication process will apparently facilitate the fluid SGIP design envisioned by the Decision, and we accept the PAs' reply on ways that the reapplication process could be streamlined and order them to reflect that in the revised SGIP Handbook required by this resolution.

*Electronic signatures*

Third, Sunrun requests that electronic signatures be accepted by the PAs instead of "wet" or scanned wet signatures on application documents. They note that utility interconnection programs already allow for electronic signatures.[62]

The PAs state that electronic signatures are acceptable on certain program documents at this time. The precise documents that are acceptable with an electronic signature appear to vary by PA.[63]

The protest is denied and the PAs' proposal is accepted as the PAs' proposal meets the Decision's requirements for a fluid SGIP program. Such fluidity does not require that all documents be eligible for electronic signatures. Notwithstanding this, the PAs are encouraged to accept electronic signatures on as many documents as possible to ensure a smooth and efficient application process. We require that the PAs specify when specific documents, if any, will not have electronic signature capability in the Tier 1 AL required by this Resolution.

[60] PA reply at 5.

[61] D.16-06-055 at 41.

[62] *Id.*

[63] PA reply at 5.

*Minor change orders*

Fourth, Sunrun requests that certain minor changes to the project site or host customer be allowed without a case-by-case assessment by a PA. Sunrun offers as an example of a minor change order the case of a solar installer needing to change the number of solar panels or brand of panels after submitting an application. They request that the PAs clarify which project changes require individual review and which may simply be allowed without review.[64]

The PAs reply that this issue was not addressed in the Decision and therefore should not be addressed in this resolution. They point out that applicants may already change components of equipment so long as all other program rules are being followed.[65]

Sunrun does not suggest that the PAs' proposal is out of compliance with the Decision, and therefore their protest on this point is denied.

*Timing of energy efficiency audit submission*

Finally, Sunrun argues in its protest that a customer should not be required to submit documentation of an energy efficiency audit at the time an incentive is requested. They claim that while the Decision requires such an audit, the timing of the completion of that requirement is not spelled out, and it would be better for SGIP administration if the evidence of completion of an energy efficiency audit was presented at the time of the Incentive Claim Process. Sunrun also requests that the revised Handbook clarify the particular requirements of an audit.[66] Custom Power Solar also supports modifying the PAs' proposal to change the timing of the audit documentation submission to the Incentive Claim Process.[67] CESA supports this proposal as well, and believes that the energy efficient audit documentation should be provided at the time of the incentive claim.[68]

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[64] *Id.*

[65] PA reply at 10.

[66] Sunrun protest at 3-4.

[67] Custom Power Solar protest at 9.

[68] CESA protest at 7.

Custom Power Solar argues that there is ambiguity in the requirements for customer documentation related to project milestones. They request that the revised SGIP Handbook clarify if there is a requirement for the proof of project milestone documentation to be submitted with the online application as part of the two-step reservation request.[69]

The PAs recommend leaving existing requirements in place given that the Decision did not require any changes to existing rules.[70]

In the absence of new requirements on the timing of energy efficient audit submissions in the Decision, existing requirements from D.11-09-015 should stand. The protests on this point are denied.

**Trigger for a 20-day "pause period" between incentive steps**

The Decision's Conclusion of Law #52 states that the PAs "will develop a system that creates a pause between incentive steps of no less than twenty days if the previous incentive step was fully subscribed within ten calendar days."[71]

In their AL, the PAs propose to employ a pause period of not less than 20 days between each incentive step, regardless of whether a lottery is used.[72] The following activities are proposed by the PAs to apply during the pause period:

1) No new applications within the budget category are accepted.

2) The PA may perform a pre-screen of projects selected for the lottery to reject applications with missing documentation or applications submitted above the developer cap.

3) If required, the lottery is conducted.

4) After 10 days, PAs will determine if the incentive level reduction for energy storage technologies shall increase from $0.05/Wh to $0.10/Wh

[69] Custom Power Solar at 8-9.

[70] PA reply at 10.

[71] D.16-06-055 at 81.

[72] AL at 13.

between incentive steps based on statewide oversubscription for a given step.

5) If a lottery is conducted, a notification of the results of the lottery is sent to applicants. Applications that were not selected for funding in the current step through the lottery will be instructed on how to reapply for funding in the next step.

6) Projects that are only able to be partially funded within a certain step must choose to reapply for funding in the next step or claim the remaining funds in the current step.

7) The SGIP public website is updated with information on the new incentive rate(s), available funds and the date of the next application submission opportunity.[73]

Several protestors object to the PAs' proposal to employ a pause period in this fashion. CalSEIA claims that the PAs are misapplying the Decision's mandate by creating a pause period between each step regardless of how quickly the previous step was subscribed.[74] SolarCity supports a pause period when an incentive step is oversubscribed, but criticizes the PAs' proposal for encouraging "fits and starts" in the program's disbursement of incentives. They suggest that the PAs' proposal be modified to literally comply with the Decision's requirement for a pause period only if a step is oversubscribed within 10 days.[75] CESA also objects to the PAs' proposal and argues that if a "stampede" for incentives does not emerge within 10 days, then a pause period is not needed and is contrary to the Decision's requirements.[76]

The PAs assert that the Decision granted them wide latitude to define the detail of potential pause periods between steps, and that implementing a pause period between every step is necessary for the PAs to perform administrative functions. They also state that the "discussion in the Decision of the pause period does not

[73] AL at 13-14.

[74] CalSEIA protest at 3-4.

[75] SolarCity protest at 3.

[76] CESA protest at 4.

contemplate the correlation between steps subscribing within ten calendar days and the pause period."[77]

The Decision does not forbid the use of a pause period if an incentive step is not fully subscribed within 10 days. In fact, the Decision only states that a pause period is allowed if a step is fully subscribed within 10 days.

While the letter of the Decision does not forbid the proposal by the PAs, SolarCity makes a crucial point that the incentive step system was designed to reduce the historically intermittent nature of SGIP incentive awards, and therefore the PAs' proposal is contrary to the policy intent of the Decision.[78] We therefore analyze the PAs' asserted need for the pause period to determine if it should withstand SolarCity's critique.

Three of the PAs' proposed seven activities during the pause period relate to the operation of the lottery - #2, #3 and #5. The Decision supports the use of a pause period in the event a lottery is required[79] and therefore these activities are proper justification for a pause period. Activity #4 would only be required in the event a step is oversubscribed in 10 days, and as above the Decision supports a pause period in this event.

Activity #1 appears to be a tautology and is therefore not a discrete administrative activity that requires a pause period. Activity #6 requires the PAs to work with an SGIP applicant that straddles an incentive step and help them decide whether to accept a partial incentive or resubmit an application during the next step. We find it is unlikely that the administrative burden of this activity requires a 20 day pause period. Activity #7 will require the PAs to be diligent and update their website on a daily basis so that potential applicants are aware of changes to incentive steps, but as with activity #6 we find it is unlikely that the administrative burden of this activity requires a 20 day pause period. This is public outreach that the PAs should be prepared to conduct regardless of the interest in a given incentive step.

[77] PA reply at 3.

[78] SolarCity protest at 3.

[79] D.16-06-055 at 51.

Because most of the activities that require high levels of resourcing are actually related to processes required by full subscription within a 10 day period, and because the other activities appear to lack the administrative burden requiring a pause period, the protests on this point are upheld. The Decision's stated intent is to ensure that, rather than making additional funds available every year, SGIP is administered on a continuous basis with incentive levels declining based on the capacity reserved in the program.[80] The Decision also states that it seeks to facilitate a fluid SGIP design that supports the market with limited interruption.[81] Because the PAs' proposal for a 20 day pause period interferes with this continuity goal and is not administratively justified, the PAs are ordered to clarify that the proposed pause period will only take place if an incentive step is fully subscribed within 10 calendar days.

**Providing zip codes for SGIP applications in areas affected by the closure of Aliso Canyon**

The Decision adopted criteria for SGIP applications that would give certain applications preferential treatment in the event a lottery is required in a given incentive step.[82] The AL sets out the specifics of the lottery process and states that priority will be given to energy storage projects located within the service territory of Los Angeles Department of Water and Power (LADWP) and within the West Los Angeles Local Reliability Area (West LA LRA) of SCE's service territory. The West LA LRA boundaries will be determined by zip code.[83]

SolarCity states that in order to allow developers to more easily identify projects that might qualify for this prioritization, the PAs should provide a list of zip codes that either partially or totally fall within the territory of LADWP or the West LA LRA, as well as a map of those zip codes.[84] CalSEIA argues that the revised SGIP Handbook should contain the zip codes for these priority areas to enhance understanding and avoid potential disputes.[85] CESA also recommends

[80] D.16-06-055 at 2.

[81] D.16-06-055 at 41.

[82] D.16-06-055 at 52.

[83] AL at 12.

[84] SolarCity protest at 3-4.

[85] CalSEIA protest at 4.

that a list of zip codes within these priority areas be provided to support project developers in their siting efforts.[86]

The PAs' reply states that the PAs intend to publish a list of zip codes identifying the localities that will qualify for the lottery priority. They recommend that this list be maintained online to allow for easy revisions, and that they are amenable to including a link to the online list in the SGIP Handbook.[87]

Because the provision of the relevant zip codes would support and enhance the Decision's goal to prioritize siting of SGIP storage projects in these areas, the protests on this point are upheld. The PAs are ordered to provide the zip codes that are wholly contained by the service area of LADWP and the West LA LRA. In the event that a zip code is only partially contained in these areas, a map shall be provided showing the exact location of the boundary of LADWP or the West LA LRA in the zip code. In accord with the PAs' recommendation, the zip code list and the map (if applicable) may be maintained online with a link to the online location appearing in the SGIP Handbook.

**Warranty requirement**

The law requires that SGIP equipment by safe and commercially available.[88] The Decision establishes the following certification and warranty standard for SGIP equipment in order to fulfill this requirement:

> "For the safe and commercially available requirement, we adopt the requirement that within one year of the effective date of this decision, all eligible technologies must be certified for safety by a [Nationally Recognized Testing Laboratory] or supported by a 10-year warranty as consistent with Rule 21 interconnection standards and Commission Decision D.16-01-044."[89]

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[86] CESA protest at 5.

[87] PA reply at 3.

[88] Public Utilities Code § 379.6(e).

[89] D.16-06-055 at 14. Notably, D.16-01-044 imposes a minimum 10-year warranty or service agreement requirement for NEM 2.0 equipment to ensure continued maintenance and to help protest against defects caused by faulty manufacture (D.16-01-044 at 83). That Decision also states "[t]he interconnection request [for NEM 2.0 equipment] should also verify that a

The PAs' revised SGIP Handbook memorializes this requirement at section 4.2.1.[90] The revised SGIP Handbook also includes a preexisting requirement that SGIP projects be covered by a 10-year service warranty.[91]

In their protest, Custom Power Solar argues that the two warranty requirements should be aligned so that the service warranty obligation applies in both circumstances. Custom Power Solar states that this is necessary as some battery energy storage systems do not have a manufacturer's 10-year warranty, in part because the technology is relatively new, and it would be easier to simply require a 10-year service warranty that can currently be covered by the developer/installer.[92]

In their reply, the PAs state that their proposal complies with the requirements of the Decision. Because the general warranty is required by the Decision for a technology to meet commercial availability requirements, the PAs ask that the requirements not be changed at this time.[93]

The Decision's warranty requirements should be consistent with the warranty requirements of D.16-01-044. That Decision states that a minimum 10-year warranty *or* service agreement is required to ensure proper maintenance and continued system performance of NEM 2.0 equipment.[94] Because D.16-01-044 refers to the existing SGIP requirement for a 10-year service warranty to fulfill this requirement, consistency requires that a single 10-year service warranty be allowed to fulfill the requirements of D.16-06-055 as well, in the event that Rule 21 interconnection standards or the certification by a nationally-recognized testing laboratory (NRTL) do not require a separate manufacturer's warranty.

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warranty of at least 10 years has been provided on all equipment and its installation" and then refers to the SGIP service warranty requirement for SGIP-eligible NEM 2.0 equipment (D.16-01-044 at 101).

[90] AL, Attachment A at 34.

[91] AL, Attachment A at 49, 78.

[92] Custom Power Solar protest at 3-4.

[93] PA reply at 8.

[94] D.16-01-044 at 83.

Custom Power Solar's protest is upheld in part and the PAs are ordered to revise the proposed SGIP Handbook so that a single 10-year service warranty is sufficient to meet the statutory requirement for safe and commercially available equipment in the event that NRTL certification has not been achieved, and in the event that Rule 21 interconnection standards do not require an additional warranty. If Rule 21 interconnection standards or NRTL certification ultimately require a separate 10-year manufacturer's warranty in addition to the 10-year service warranty, then that obligation for dual warranties stands and must be met by the project developer.

**Metering and monitoring requirements for SGIP storage systems paired with renewable generators**

The Decision found that with respect to SGIP storage systems paired with renewable generators "[t]he SGIP Handbook should be clarified to clearly indicate that the size of the SGIP storage system shall only be limited by the customer's [demand], not the paired capacity."[95]

In their AL, the PAs aim to implement this language by modifying the SGIP Handbook to "require that storage projects paired with and charging from on-site renewable generators must install metering and monitoring equipment that measures net electrical output or offset from the system."[96] The AL does not explain the genesis for this change, but it appears that the Decision's sizing requirements cited above may be the inspiration.

Custom Power Solar argues that this requirement in the revised SGIP Handbook is inconsistent with the 10kW sizing threshold established in D.14-05-033 for storage systems paired with a NEM generator. They state that in D.14-05-033 extra metering was not compulsory for customers below the 10kW threshold.[97]

CalSEIA makes a similar argument, and states that the metering requirement as proposed by the PAs run afoul of both D.14-05-033 and D.16-04-020. CalSEIA recommends that the language be changed to reflect the 10kW exemption

[95] D.16-06-055 at 35.

[96] AL, Attachment A at 51.

[97] Custom Power Solar protest at 8.

threshold for new metering equipment.[98] Sunrun generally makes the same point.[99]

In their reply, the PAs state that their proposed language is in line with the Decision's intent and does not require modification. However, the PAs do clarify that they "are not requiring that residential systems purchase additional meters for this verification. As adopted in Resolution E-4717[100], the PAs require that systems have the ability to provide data and allow for the use of metering and monitoring equipment that is already part of the system."[101]

While it is true that extra metering is not required by D.14-05-033 for NEM-PS systems under 10kW, those systems may or may not be SGIP systems. As noted by the PAs, the intent of the Decision was to address the data requirements for SGIP systems given the priority extended to paired systems in the SGIP lottery system. An SGIP system may simultaneously be a NEM-PS system, but that does not excuse the system from a host of SGIP reporting requirements that would not otherwise apply to a non-SGIP NEM-PS system.[102] The protests on this point are denied in light of the clarification that residential systems are not required to install any metering beyond what it already part of the system. The PAs shall document this clarification in the revised SGIP Handbook required by this resolution.

**Preliminary monitoring plan requirements for storage systems paired with renewable generators**

The Decision mandates that priority in any storage SGIP lottery be given to projects that meet certain criteria. One of these is a demonstration that the project

[98] CalSEIA protest at 3.

[99] Sunrun protest at 7.

[100] On page 8, Resolution E-4717 accepts a PA assurance that the metering equipment that is part of the residential customer's energy storage device may be used in lieu of standalone metering tools or in lieu of a more costly metering solution.

[101] PA reply at 2.

[102] *See, e.g.,* AL, Attachment A at 43 for a description of the operational requirements for SGIP-funded storage systems; and AL, Attachment A at 42 for a description of the minimum round-trip efficiency standards for SGIP-funded storage systems.

is paired with a renewable generator (a paired-storage system) and that it is charged from renewable energy based on a PA-approved preliminary monitoring plan (PMP), or that it elects to take the investment tax credit (ITC).[103] The Decision does not spell out the detail of the PMP, but it is clear from the equivalence drawn with the ITC requirement that the PMP is intended to verify that at least 75% of the storage system's charging should come from the renewable generator to which it is paired. The AL confirms this approach.[104]

The AL provides high-level information on the structure of the PMP. The PMP must demonstrate how the paired-storage system will be operated.[105] The PMP itself is a required document as part of the incentive reservation request.[106] The revised SGIP Handbook details what is to be included in a PMP on pages 46-47 of the proposed draft. Many of these requirements are pre-existing and would be familiar to many SGIP developers. New, apparently additional, requirements are mentioned for paired-storage systems. These are:

- The anticipated charge and discharge schedule of the system demonstrating that the system complies with ITC operational requirements or, for projects not claiming the ITC, will be charged at least 75% from renewables;
- The metering that will be used to verify that the system is being charged from renewables;
- The ability to provide data to verify operation in the event of an audit.[107]

In its protest SolarCity argues that these bulleted requirements are vague and leave underlying detail undefined. SolarCity is concerned about potential gaming, and recommends more stringent PMP requirements be adopted to ensure that the 75% renewable charging requirement for paired-storage systems is met.[108]

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[103] D.16-06-055 at 53.

[104] AL at 12.

[105] AL at 13.

[106] AL, Attachment A at 44.

[107] AL, Attachment A at 47.

[108] SolarCity protest at 2-3.

Custom Power Solar argues that the third bullet cited above is too vague and needs to be more specific as to the information that needs to be documented in the event of an audit, and the length of time during which the information should be retained.[109]

In their reply, the PAs state that "due to the diversity of storage technologies and configurations, as well as the minimal experience the program has with verifying storage charging from renewables, the PAs did not develop overly-prescriptive Preliminary Monitoring Plan requirements."[110]

With respect to Custom Power Solar's argument, the PAs state that "[s]torage systems must be able to monitor the energy and power of charging and discharging and the number of charges and discharges in no greater than fifteen-minute intervals. Systems must have the ability to meter, monitor, and retain information for at least the first five years of operation, and the data must be presented in '.csv' format." They refer Custom Power Solar to more details in the revised SGIP Handbook.[111]

Given the additional details provided in their reply, the proposal by the PAs is reasonable. Prescriptive requirements for a PMP at this time would restrict the ability of project applicants to design innovative and efficient ways to meet the Decision's charging requirements for a paired-storage project. The outcome that the Decision seeks is clear, and the PAs appropriately seek to evaluate the applications as they are submitted to determine if the Decision's requirements for these projects will be met.

Custom Power Solar's protest appears to be moot given the detail provided by the PAs in their reply. However, developers that feel as though the PMP details remain unsuitably vague during 2017 are encouraged to contact Energy Division staff and alert them to practical problems that they face. The CPUC may address this issue at a later time if action is warranted.

[109] Custom Power Solar protest at 6.

[110] PA reply at 5-6.

[111] PA reply at 8.

**Timing of implementation of new California supplier incentive adder**

The Decision clarified that the existing SGIP California supplier incentive adder would be available for that equipment deemed to be manufactured in California if 50% or more of its value is determined to have been added in a manufacturing process (or processes) located in California.[112] The Decision also clarified that beginning on June 23, 2017, the PAs should deny requests for the California supplier incentive adder for suppliers that have not received updated certification under the new rules.[113]

The PAs propose to apply this rule beginning June 23, 2017, and all manufacturers, including suppliers that were previously approved, wishing to receive a 20% adder will be required to meet the new requirements. Additionally, only projects using equipment from an approved California manufacturer under the new requirements will be eligible to receive the adder. Currently-approved suppliers may retain the adder only if that manufacturer is re-approved under the new requirements by no later than the Incentive Claim stage.[114]

In their protest CESA seeks clarity as to how the new California supplier rules will work for SGIP applications that are submitted prior to June 23, 2017. They ask the PAs to clarify whether they intend to open SGIP applications under the old rules prior to June 23, 2017, or whether they perhaps intend to decline to award the California supplier incentive adder at all until June 23, 2017.[115]

CESA also recommends that the PAs clarify the administrative process for obtaining California supplier status. CESA is concerned that inefficiently processed applications may lead to delays and lost opportunities for incentives.[116]

[112] D.16-06-055 at 41.

[113] D.16-06-055 at 42.

[114] AL at 9.

[115] CESA protest at 4.

[116] CESA protest at 4.

The PAs respond to CESA's first request by stating in their reply that "before June 23, 2017, projects may include the 20% adder to their incentive if they apply with currently-eligible CA Suppliers. However, in order for these projects to receive the 20% adder at the time of payment, the equipment manufacturer must meet the new CA Manufacturer requirements by the time the project reaches the Incentive Claim stage. All projects using equipment from manufacturers that are not eligible for the adder under the new requirements will not receive the 20% adder at the time of payment, even if they applied before June 23, 2017 with a then-eligible CA Supplier."[117]

With respect to CESA's second request, the PAs state that they are still waiting on CPUC approval of the proposed changes to the California supplier rules and thereafter will develop the implementation details.[118]

CESA's requests seek information from the PAs rather than argue that the PAs' proposal is out of compliance with the Decision. The original proposal of the PAs, as modified by their reply, is reasonable. The Tier 1 Advice Letter compliance filing required by this resolution shall contain the clarification provided in the PA's reply.

**Application criteria**

The Decision established new requirements for SGIP applications. These included a 5% application fee, due at the time of submission. The intent of this increased fee is to ensure that applications submitted represent projects which have undergone adequate due diligence.[119] The AL reflects this change.[120]

Borrego Solar argues that this increase in the application fee is insufficient to ensure that SGIP applications come only from well-developed projects that have been "properly de-risked."[121] They recommend that the CPUC add one or two

[117] PA reply at 8.

[118] *Id.*

[119] D.16-06-055 at 50.

[120] AL at 11.

[121] Borrego Solar protest at 3.

additional project milestones to the application criteria, although they do not specify what these might be.[122]

The PAs reply that the proposal by Borrego Solar is beyond the scope of the Decision and is not supported by specific suggestions for new project milestones.[123]

The AL complies with the Decision's requirements on its face by setting an application fee at 5% of the total incentive sought. The protest of Borrego Solar on this point is therefore denied.

**Additional data for program measurement and evaluation**

SolarCity requests that the data collected from SGIP projects going forward include the budget step from which a project's incentives were drawn. They also seek to collect data on whether a project claims that it qualifies as storage paired with a renewable generator, and if so if it claims the ITC.[124]

The PAs state that this request is beyond the requirements of the Decision and do not recommend adopting the request of SolarCity. Nevertheless, they also state that "new fields that determine incentive amounts and prioritization, such as incentive step or paired with renewables and/or claiming the Investment Tax Credit, should be included in the SGIP Weekly Statewide Report. The PAs are working with their database provider to incorporate these changes."[125]

The PAs are correct that the request is beyond the requirements of the Decision and therefore we do not opine on its merits. We encourage SolarCity and the PAs to continue discussing this issue.

[122] *Id.*

[123] PA reply at 11.

[124] SolarCity protest at 6.

[125] PA reply at 11.

**Storage step incentive decreases of $0.10 if demand is high**

The Decision creates a process whereby the storage incentive steps decrease $0.10 between steps if a step is fully subscribed in 10 days or less.[126] In their AL the PAs do not propose any change to this formula.

CESA points out that for non-residential ITC projects, the five steps start at $0.36/Wh. This means that if the non-residential ITC storage bucket is very popular, incentives could fall to $0.00 by the fifth step. CESA states that this scenario could lead to an absurd result where incentive funds in the fifth step could be allocated to an incentive bucket that awards incentives of $0.00.[127] CESA suggests that the incentive schedule be modified to avoid this result and reflect market experience and program participation for each technology sub-category.[128]

The PAs assert that their AL is in compliance with the Decision and do not agree to revise the incentive step-downs at this time.[129]

We note that this issue is the subject of a petition for modification filed by CalSEIA on November 18, 2016. This resolution takes no position on this issue.

**Compliance Advice Letter**

We find that the AL filed by the PAs on October 21, 2016 is largely compliant with the Decision, but must be modified as outlined in this Resolution. The PAs shall file a Tier 1 compliance advice letter that ensures the implementation of SGIP will be in conformance with this Resolution within 14 days of the effective date of this Resolution.

[126] D.16-06-055 at 32.

[127] CESA protest at 2.

[128] CESA protest at 3.

[129] PA reply at 11.

## COMMENTS

Public Utilities Code section 311(g)(1) provides that this resolution must be served on all parties and subject to at least 30 days public review and comment prior to a vote of the CPUC. Section 311(g)(2) provides that this 30-day period may be reduced or waived upon the stipulation of all parties in the proceeding.

The 30-day comment period for the draft of this resolution was neither waived nor reduced. Accordingly, this draft resolution was mailed to parties on January 9, 2017.

## FINDINGS

1. The biogas adder was designed by the Decision to incent more biogas usage than required by the minimum blending rule, not to increase incentives for those projects that merely meet the minimum eligibility requirements of the program.
2. The biogas adder is the pro-rated incentive adder that is available for those projects that use any fuel usage above the minimum required. If it were to be paid to those that merely meet the minimum biogas requirements it would cease to be an adder in the normal sense of the word. Because biogas is a minimum requirement for Self-Generation Incentive Program (SGIP) projects beginning in 2017, under the program administrators' (PAs') interpretation the adder would simply become part of the base incentive per watt of capacity, which would contradict the normal meaning of the word adder.
3. According to the California Energy Commission's 2009 Residential Appliance Saturation Survey (RASS), the average annual residential electricity consumption in California in 2009 was 6,296 kilowatt-hours (kWh) per household, based on billing data from 24,457 households. Dividing that figure by 12 gives us an estimated average monthly residential usage of 525 kWh.

4. Applying the average monthly usage figure to the PAs' proposed peak demand estimation formula, and assuming a 30-day month, then the peak demand is estimated to be 1.7kW.
5. Referring to Table 2.1.16 of the United States Department of Energy's 2010 Buildings Energy Data Book we find the following demand values for some common household appliances when they are active: one coffee maker = 1kW; one microwave oven = 1.5kW; four 60 watt incandescent lightbulbs = 0.24kW; one high-definition television = 0.15kW; one desktop computer + monitor = 0.12kW.
6. Assuming that all of these appliances may be active simultaneously at least once per year, we derive an annual peak demand of 3kW. This is nearly double the estimate provided by the PAs' estimation formula. Given this, we find that it is likely that the PAs' estimation formula underestimates the true annual peak demand of a residential customer.
7. Because the detail of the peak demand estimation methodology is not adequately addressed in the Decision, and because the proposal by the PAs in their AL does not allow for SGIP projects to be accurately sized to match a customer's peak demand, it is necessary for this Resolution to establish specific rules for a peak demand estimation methodology going forward in order to give effect to the Decision's mandates.
8. D.16-06-055 establishes a 10kW threshold for the incentives provided to storage projects. All residential storage projects less than or equal to 10kW in size are entitled to the maximum incentive allowed and are reserved a specific carveout (12.5%) of all SGIP incentives.
9. D.14-05-033 established a 10kW threshold for using an estimation methodology for determining the maximum size of storage system paired with a net energy metering (NEM) generator.
10. It is apparent that the current market for storage systems does not adequately support customer choice for systems less than 5kW in size.
11. D.16-06-055 does not forbid the use of a pause period if an incentive step is not fully subscribed within 10 days. In fact, D.16-06-055 only states that a pause period is allowed if a step is fully subscribed within 10 days.

12. Three of the PAs' proposed seven activities during the pause period relate to the operation of the lottery - #2, #3 and #5. D.16-06-055 supports the use of a pause period in the event a lottery is required and therefore these activities are proper justification for a pause period. Activity #4 would only be required in the event a step is oversubscribed in 10 days, and as above, D.16-06-055 supports a pause period in this event.
13. Activity #1 of the pause period appears to be a tautology and is therefore not a discrete administrative activity that requires a pause period. Activity #6 requires the PAs to work with an SGIP applicant that straddles an incentive step and help them decide whether to accept a partial incentive or resubmit an application during the next step. We find it is unlikely that the administrative burden of this activity requires a 20 day pause period. Activity #7 will require the PAs to be diligent and update their website on a daily basis so that potential applicants are aware of changes to incentive steps, but as with activity #6 we find it is unlikely that the administrative burden of this activity requires a 20 day pause period. This is public outreach that the PAs should be prepared to conduct regardless of the interest in a given incentive step.
14. The PAs have not demonstrated why activities #6 and #7 of the pause period are so administratively burdensome as to require a pause period of 20 days.
15. The PAs' proposal for a 20 day pause period between all incentive steps regardless of whether a preceding step was fully subscribed within 10 days interferes with the continuity goal of D.16-06-055 and is not administratively justified.
16. The provision of the zip codes in the territory of the Los Angeles Department of Water and Power and the West Los Angeles Local Reliability Area would support and enhance the goal of D.16-06-055 to prioritize siting of SGIP storage projects in these areas.
17. The warranty requirements of D.16-06-055 should be consistent with the warranty requirements of D.16-01-044, which states that a minimum

10-year warranty *or* service agreement is required to ensure proper maintenance and continued system performance of NEM 2.0 equipment.

18. Because D.16-01-044 refers to the existing SGIP requirement for a 10-year service warranty to fulfill its warranty requirement, consistency requires that a single 10-year service warranty be allowed to fulfill the requirements of D.16-06-055 as well, in the event that Rule 21 interconnection standards or the certification by a nationally-recognized testing laboratory (NRTL) do not require a separate manufacturer's warranty.

## THEREFORE IT IS ORDERED THAT:

1. Southern California Gas Company (SCG) Advice Letter (AL) 5049, Pacific Gas & Electric Company (PG&E) AL 3773-G/4942-E, Southern California Edison Company (SCE) AL 3491-E, and Center for Sustainable Energy (CSE) AL 71 are approved as modified in this Resolution, subject to a compliance filing required in Ordering Paragraph 9.
2. The Program Administrators (PAs) must change their biogas adder calculation so that only the amount of biogas used that exceeds the minimum required by the biogas blending rule for that program year is used to determine the total biogas adder incentives.
3. The existing and proposed method for estimating an Self-Generation Incentive Program (SGIP) customer's maximum demand must be replaced by a hierarchy of three methodologies as defined by this Resolution and to be used in the following order of preference: 1) actual data on the maximum demand of the customer over the previous 12 months, 2) an estimation of maximum demand based on the customer's highest recorded interval usage over the previous 12 months, or if 12 months of data are not available then 3) the National Electrical Code (NEC) Section 220 method.
4. Any SGIP proposal for a storage project that is 10 kilowatts (kW) or less in size shall not be subject to a sizing requirement based on an estimate of a customer's peak demand.

5. Customers filing for SGIP funding with Southern California Edison (SCE) and Pacific Gas & Electric (PG&E) are not required to submit their usage and demand data once they have established they are an electric customer of either SCE or PG&E through the submission of bills evidencing that fact.
6. The PAs must clarify that the proposed pause period between incentive steps will only take place if an incentive step is fully subscribed within 10 calendar days.
7. The PAs must provide the zip codes that are wholly contained by the service area of the Los Angeles Department of Water and Power (LADWP) and the West Los Angeles Local Reliability Area. In the event that a zip code is only partially contained in these areas, a map shall be provided showing the exact location of the boundary of LADWP or the West Los Angeles Local Reliability Area in the zip code.
8. The PAs shall revise the proposed SGIP Handbook to clarify that a single 10-year service warranty for storage systems is sufficient to meet the statutory requirement for safe and commercially available equipment in the event that NRTL certification has not been achieved, and in the event that Rule 21 interconnection standards do not require an additional warranty. The SGIP Handbook shall further clarify that if Rule 21 interconnection standards or NRTL certification ultimately require a separate 10-year manufacturer's warranty in addition to the 10-year service warranty, then that obligation for dual warranties stands and must be met by the project developer.
9. The PAs shall file a Tier 1 compliance advice letter conforming to the SGIP Handbook with this Resolution and its ordering paragraphs within 14 days of the effective date of this Resolution.

This Resolution is effective today.

I certify that the foregoing resolution was duly introduced, passed and adopted at a conference of the Public Utilities Commission of the State of California held on February 9, 2017; the following Commissioners voting favorably thereon:

TIMOTHY J. SULLIVAN
Executive Director